

**TITLE 327 WATER POLLUTION CONTROL BOARD**  
**LSA Document #98-268 (F)**

**DIGEST**

Adds 327 IAC 8-3.4 to establish technical standards for the design and construction of public water system wells and repeals 327 IAC 8-7, 327 IAC 8-8, and 327 IAC 8-9. Effective 30 days after filing with the secretary of state.

**HISTORY**

First Notice of Comment Period: May 1, 1997, Indiana Register (20 IR 2213).

Second Notice of Comment Period and Notice of First Hearing: September 1, 1998, Indiana Register (21 IR 4599).

Date of First Hearing: October 14, 1998.

Third Notice of Comment Period and Notice of Second Hearing: January 1, 1999, Indiana Register (22 IR 1082).

Date of Second Hearing and Final Adoption: March 10, 1999.

**327 IAC 8-3.4**

**327 IAC 8-7**

**327 IAC 8-8**

**327 IAC 8-9**

SECTION 1. 327 IAC 8-3.4 IS ADDED TO READ AS FOLLOWS:

**Rule 3.4. Public Water System Wells**

**327 IAC 8-3.4-1 Definitions**

**Authority:** IC 13-13-5-1; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 16-41-26-1; IC 25-17.6; IC 25-31

**Sec. 1. In addition to the definitions contained in IC 13-11-2, the following definitions apply throughout this rule:**

(1) “Agricultural labor camp” means an area as described in IC 16-41-26-1.

(2) “Annulus” means the space between the exterior of a well casing and the inside diameter of the borehole.

(3) “Bentonite” means clay material composed predominantly of sodium montmorillonite which meets American Petroleum Institute specifications standard 13-A, Drilling Fluid Materials (1985)\*.

(4) “Bentonite slurry” means a mixture, made according to manufacturer specifications, of water and commercial grouting or plugging bentonite which contains high concentrations of solids. The term does not include sodium bentonite products

which contain low solid concentration or which are designed for drilling fluid purposes.

(5) “Certified professional geologist” means a person who is certified as a professional geologist by the board of certification for professional geologists under IC 25-17.6.

(6) “Community public water supply system” or “CPWSS” or “community” means a public water system that serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

(7) “Course grade crushed bentonite” means natural bentonite crushed to an average size range of three-eighths ( $\frac{3}{8}$ ) to three-fourths ( $\frac{3}{4}$ ) inches.

(8) “Direct additives” means chemical additives that are used in public water systems for the treatment of raw water. Direct additives are also used to protect drinking water during storage and distribution. Examples of direct additives include agents used for the following:

- (A) Coagulation and flocculation.
- (B) Corrosion and scale control.
- (C) Softening.
- (D) Sequestering.
- (E) Precipitation.
- (F) pH adjustment.
- (G) Disinfection.
- (H) Oxidation.

(9) “Distribution system” means one (1) of the following:

(A) In a community public water supply system, the term means the network of water piping, pumping stations, storage equipment, valves, fire hydrants, pressure regulators, and equipment required to transport water to the customer’s service connection from one (1) of the following points:

- (i) A treatment plant.
- (ii) A source of raw water supply if no treatment is provided.

(B) In a noncommunity public water supply system, the term means the network of water piping, pumping stations, valves, fire hydrants, pressure regulators, and equipment required to transport water to the point of use from one (1) of the following:

- (i) A point that is one (1) foot beyond the water storage tank.
- (ii) The well if no water storage tank is utilized.

(10) “Drawdown” means the vertical difference measured between the static and the pumping water levels. This term is commonly expressed in units of length.

(11) “Flowing well” means a well completed in a confined aquifer where the water rises naturally to an elevation above land surface.

(12) “Indirect additives” means additives that are materials or equipment that come in contact with drinking water or come in contact with direct additives. Examples of indirect additives include the following:

- (A) Pipes, valves, and related products.
- (B) Barrier or baffle materials.
- (C) Joining and sealing materials.
- (D) Protective materials and related products.
- (E) Mechanical devices or structures used in treatment, storage, transmission,

and distribution systems.

(13) “Isolation area” means the separation distance of a public water supply system production well from a potential or existing source of contamination or damage as described in section 9 of this rule.

(14) “Medium grade crushed bentonite” means natural bentonite crushed to an average size range of one-fourth ( $\frac{1}{4}$ ) to three-eighths ( $\frac{3}{8}$ ) inch.

(15) “Noncommunity public water supply system” or “NCPWSS” means a public water system that serves at least fifteen (15) service connections used by nonresidents or regularly serves twenty-five (25) or more nonresident individuals daily for at least sixty (60) days per year.

(16) “Nontransient noncommunity public water supply system” means a noncommunity public water supply system that:

(A) serves at least fifteen (15) service connections used by nonresidents; or

(B) regularly serves the same twenty-five (25) or more nonresident individuals daily for at least six (6) months per year.

(17) “Normal operating pressure” means the water pressure maintained in a system regardless of public service load in the absence of extenuating circumstances.

(18) “Peak daily consumer demand” means the flowrate as determined in 327 IAC 8-3.3.

(19) “Primary pump” means a pump used to deliver drinking water to a distribution system.

(20) “Production well” or “well” means a well that provides water for human consumption within the applicability of section 2 of this rule.

(21) “Professional engineer” means a person who is registered as a professional engineer by the state board of registration for professional engineers under IC 25-31.

(22) “Pumping test” means a test that is conducted to determine well performance or aquifer characteristics.

(23) “Rated capacity” means the flowrate that a pump is capable of producing at a total dynamic head as determined by the manufacturer of that pump. This term is usually expressed as a unit of volume produced from a well within a unit of time.

(24) “Regulatory flood” has the meaning as set forth in 310 IAC 6-1-3.

(25) “Schedule 40” refers to the unit of size of standard steel pipe. Standard pipe sizes are designated by the nominal size and schedule number; the schedule numbers are related to the permissible operating pressure of the pipe and to the allowable stress of the steel of the pipe. The range of schedule numbers is from ten (10) to one hundred sixty (160) with the higher numbers indicating a heavier wall thickness. Since all schedules of pipe of a given nominal size have the same outside diameter, the higher schedules have a smaller inside diameter.

(26) “Specific capacity” means the rate of discharge of a production well per unit of drawdown. This term is commonly expressed as a unit of volume produced from a well within a unit of time per length or depth of drawdown.

(27) “Static water level” means the level of water (including seasonal fluctuations) in the production well that is not influenced by pumping.

(28) “Test well” means a well that is installed to obtain hydrogeological information or to monitor the quality or quantity of ground water.

(29) “Unconsolidated formations” means geologic materials overlying bedrock, such as sand, gravel, and clay.

(30) “Usable capacity” means the volume of water available in a hydropneumatic tank as measured from the pump shut-off pressure to the pump starting pressure.

**\*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from American Petroleum Institute, 1220 L Street NW, Washington, D.C. 20005 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206. (*Water Pollution Control Board; 327 IAC 8-3.4-1*)**

#### **327 IAC 8-3.4-2 Applicability**

**Authority: IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 2. The technical standards established in this rule are applicable to the design and construction of new or modified public water supply system production wells constructed in Indiana as specified in 327 IAC 8-3 and to the applications, plans, and specifications of those water wells that are reviewed by the commissioner. (*Water Pollution Control Board; 327 IAC 8-3.4-2*)**

#### **327 IAC 8-3.4-3 Certification**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 3. A professional engineer must certify that the well design as shown on an application, plans, and specifications for a public water supply system well is in compliance with this rule. (*Water Pollution Control Board; 327 IAC 8-3.4-3*)**

#### **327 IAC 8-3.4-4 Required information regarding the location of a proposed production well**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 4. (a) Two (2) copies of the following information shall be provided with each application for a proposed production well or for the conversion of an existing well to a production well:**

**(1) A description of the purpose of the proposed well, including the following:**

**(A) The anticipated well yield.**

**(B) The anticipated system demand.**

**(2) The following, as applicable, to demonstrate ownership or control of the isolation area of the proposed well:**

**(A) A copy of a recorded deed or easement.**

- (B) A certified statement attesting to the ownership or control of the isolation area of the proposed well.**
- (3) The rated capacity of the existing well or wells if the proposed well is in an existing well field.**
- (4) The number of wells proposed for construction in the application.**
- (5) The highest flood elevation on record with the Indiana department of natural resources in the proposed isolation area, as determined in section 9 of this rule, if any part of the isolation area is in an area identified by the Federal Emergency Management Agency (FEMA) as a flood hazard.**
- (b) The following two (2) types of public water supply systems shall submit an application, for a new production well, that provides the information as specified:**
- (1) A CPWSS subject to this rule shall submit two (2) copies of the following:**
- (A) The information required by 327 IAC 8-4.1-13.**
- (B) Driving directions to the well site.**
- (2) A NCPWSS subject to this rule shall submit two (2) copies of the following:**
- (A) A detailed map, drawn to a scale, showing the following:**
- (i) The proposed well site with ownership or easement boundaries.**
- (ii) The location of the proposed well.**
- (iii) The standard isolation area in accordance with section 9 of this rule.**
- (iv) The results of a visual survey showing all sources of contamination within a radius of one thousand (1,000) feet.**
- (B) The United States Geological Survey (USGS) quadrangle name for the proposed production well site.**
- (C) A summary of geologic and ground water quality information, where available, for the aquifer system utilized by a proposed well.**
- (D) Driving directions to the production well site.**
- (c) The plans required to be submitted with an application for a construction permit specified in 327 IAC 8-3-3 shall be submitted in duplicate and include plans of the proposed well site in accordance with the following:**
- (1) Each sheet of the plans must bear a dated signature and seal of a professional engineer.**
- (2) Include the entire isolation area, as described in section 9 of this rule, or the area within a one hundred (100) foot radius from the proposed well casing, whichever is greater, along with a description specifying the following:**
- (A) The finished grade that will prevent surface water ponding near the well location.**
- (B) The highest flood elevation on record with the Indiana department of natural resources in the proposed isolation area if any part of the isolation area is in an area identified by the FEMA as a flood hazard.**
- (C) The location of the following existing or proposed facilities:**
- (i) Wells.**
- (ii) Roads and buildings.**
- (iii) Discharge piping.**

- (iv) Raw water transmission main.
- (v) Sanitary sewers, storm sewers, manholes, and culverts.
- (vi) Septic or sewage treatment equipment, including absorption field trenches.
- (vii) Aboveground storage tanks, underground storage tanks, and the distribution device serving a tank of either type.
- (viii) Surface water bodies.
- (ix) A potential source of contamination not described in this clause.

**(3) If an existing or proposed facility listed in subdivision (2)(C) is not present in the isolation area, the application for a construction permit shall specify that fact.**

*(Water Pollution Control Board; 327 IAC 8-3.4-4)*

**327 IAC 8-3.4-5 Required information regarding the mechanics of a new production well**

**Authority: IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 5. (a) The information required in this section shall be provided:**

- (1) when a construction permit application is submitted; or**
- (2) in accordance with section 6 of this rule as a postconstruction submittal.**

**(b) The following information shall be provided for a production well, whether it is proposed for construction or modification:**

- (1) The type of proposed well described as tubular, gravel pack, radial collector, rock, or other type of well.**
- (2) The type of drilling method described as rotary, cable tool, bucket, or other type of drilling method.**
- (3) The depth of the proposed well.**
- (4) The following information regarding the casing of the proposed well:**
  - (A) Length.**
  - (B) Diameter of the casing.**
  - (C) Diameter of the borehole.**
  - (D) Casing material characteristics, including the following:**
    - (i) Material type.**
    - (ii) Schedule or thickness.**
    - (iii) Pressure rating if polyvinyl chloride (PVC) is utilized as the casing material.**
  - (E) Relative elevation or mean sea level elevation of the following:**
    - (i) Top of casing.**
    - (ii) Finished well house floor or slab.**
    - (iii) Top of gravel pack.**
    - (iv) Pump base.**
    - (v) Finished grade.**
- (5) The following information regarding the well screen:**
  - (A) Material type.**
  - (B) Length.**

- (C) Diameter.
- (D) Slot size of screen.
- (E) Design entrance velocity.
- (F) Elevation of the following:
  - (i) Top of screen.
  - (ii) Base of screen.
- (6) The following information regarding the grout:
  - (A) Material type.
  - (B) Depth and the extent of the grouting.
- (7) The following information regarding the well pump:
  - (A) Type.
  - (B) Total dynamic head.
  - (C) Number of stages.
  - (D) Rated capacity.
  - (E) Pump curves.
  - (F) Type of lubrication.
  - (G) Provisions for power source.
  - (H) Provisions for emergency operation.
- (8) A description of equipment utilized for water level measurement.
- (9) The following information regarding the discharge piping:
  - (A) Material type.
  - (B) Pressure rating.
  - (C) Diameter.
  - (D) Description of the flow measuring equipment.
  - (E) Location of the following:
    - (i) Check valve.
    - (ii) Shut off valve.
    - (iii) Pressure gauge.
    - (iv) Smooth nosed sample tap.
    - (v) Air relief or vacuum relief valves where applicable.
    - (vi) Threaded or flanged port for maintenance and testing.

(c) The plans required to be submitted with an application for construction permit under 327 IAC 8-3-3 must include a cross section and plan view of the applicable proposed production well mechanics that includes the following:

- (1) Overall depth.
- (2) Depth of grouting.
- (3) Well screen location.
- (4) Casing details.
- (5) Discharge piping or raw water transmission main and components.
- (6) Well house and other protective equipment.
- (7) Pumping equipment.
- (8) Storage equipment.
- (9) Water treatment equipment.

*(Water Pollution Control Board; 327 IAC 8-3.4-5)*

### **327 IAC 8-3.4-6 Postconstruction submittal of information**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-16-2

**Sec. 6. (a)** If the applicant has elected to submit the information required in section 5 of this rule as a postconstruction submittal, the following must be received by the commissioner at least thirty (30) days before a new or modified production well with an effective construction permit is placed into production:

- (1)** The construction permit number assigned by the commissioner.
- (2)** Proposed commencement date of production.
- (3)** Information required in section 5 of this rule.
- (4)** As-built construction drawings, in accordance with section 5 of this rule and 327 IAC 8-3.

**(b)** The total of thirty (30) days, as specified in subsection (a), shall include all calendar days from the commissioner's date-stamped receipt of the items, specified in subsection (a), excluding the calendar days that occur between the following two (2) activities:

- (1)** A commissioner's written notification to the applicant that the submittal does not fulfill the requirements of subsection (a) or is incomplete, is inaccurate, or indicates the proposed construction was not in accordance with this rule or 327 IAC 8-3-4.
- (2)** The commissioner's date-stamped receipt of the applicant's submittal of additional information subsequent to the commissioner's notification, as described in subdivision (1) to demonstrate that the submittal has achieved the requirements of subsection (a) and is complete, is accurate, and indicates the proposed construction was in accordance with this rule and 327 IAC 8-3-4.

**(c)** The commissioner may modify or revoke the construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2. (*Water Pollution Control Board; 327 IAC 8-3.4-6*)

### **327 IAC 8-3.4-7 Required easements, other permits**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 7. (a)** An easement, deed restriction, or right-of-way granted for a production well must:

- (1)** prohibit the construction of any permanent structure, with the exception of structures associated with the housing of the well equipment, over the production well; and
- (2)** provide access to the production well site for maintenance purposes.

**(b)** A permit or exemption required by another government entity for a production well must be obtained prior to the commencement of construction under this rule. (*Water Pollution Control Board; 327 IAC 8-3.4-7*)



**327 IAC 8-3.4-8 Production well materials**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 8. (a) A direct additive used with a production well must be in accordance with 327 IAC 8-1.**

**(b) An indirect additive in a production well shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61, Drinking Water System Components-Health Effects, with the exception of Section 9, Mechanical Plumbing Product (November 13, 1997)\*.**

**(c) The certification requirement of subsection (b), that an indirect additive is in accordance with this rule, shall be satisfied if the indirect additive is listed with certification in one (1) of the following publications:**

**(1) “NSF Listings, Drinking Water Additives-Health Effects” (November 13, 1997)\*.**

**(2) “Classified or Recognized Drinking Water System Components, Component Materials and Treatment Additives Directory” (December 1997)\*\*.**

**(d) The commissioner may approve the use of an indirect additive in a production well only after the applicant has demonstrated that the indirect additive is in compliance with the following:**

**(1) The indirect additive has been approved and is listed by one of the publications specified by subsection (c).**

**(2) The indirect additive has been approved by an organization having a third party certification program for indirect additives that has been approved by the American National Standards Institute.**

**(e) A lead packer shall not be used in a production well.**

**(f) A public water supply system shall not introduce, permit, or allow the introduction of a material into the drinking water that does not meet the requirements of this rule or 327 IAC 8-1.**

**\*These documents are incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from NSF International, 3475 Plymouth Road, Ann Arbor, Michigan 48113-0140 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206.**

**\*\*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated**

documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this publication may be obtained from Underwriters Laboratory, Inc., Engineering Services, 416C, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room 1255, Indianapolis, Indiana 46206. (*Water Pollution Control Board; 327 IAC 8-3.4-8*)

**327 IAC 8-3.4-9 Separation of a production well from a potential or existing source of microbiological or chemical contamination or damage**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 15-3-3.5; IC 15-3-3.6

**Sec. 9.** A public water supply system shall comply with the following provisions for the separation of a production well from a potential or existing source of contamination or damage:

(1) The isolation area from a potential or existing source of contamination for the construction of a public water system production well is the circular area within a radius as stated in the following table:

**Table 9-1**  
**Isolation Radius Provisions (Linear Feet Measured from the Outside Edge of the Well Casing)**

<b>Public Water System Type</b>	<b>Standard Isolation Radius</b>	<b>Well Subjected to Automatic Disinfection*</b>	<b>Favorable Hydrogeologic Conditions are Present**</b>
<b>Community</b>	<b>200</b>	<b>100</b>	<b>100</b>
<b>Noncommunity greater than or equal to 70 gpm***</b>	<b>200</b>	<b>100</b>	<b>100</b>
<b>Noncommunity, Susceptible Populations****</b>	<b>200</b>	<b>100</b>	<b>100</b>
<b>Noncommunity, Nonsusceptible, less than 70 gpm***</b>	<b>100</b>	<b>100</b>	<b>100</b>

\*Automatic disinfection as described in subdivision (2).

\*\*Favorable hydrogeologic conditions as described in subdivision (3).

\*\*\*70 gallons per minute (gpm) as measured per pump (rated capacity).

**\*\*\*\*Schools, correctional facilities, health care facilities, and agricultural labor camps.**

**(2) The radius creating the isolation area shall be one hundred (100) feet for a well that will be subject to automatic disinfection treatment meeting the provisions of 327 IAC 8-2-8.6 prior to entering the distribution system.**

**(3) A determination of favorable hydrogeological conditions may be approved by the commissioner after the submission of a report that is signed, dated, and sealed by a certified professional geologist or other person legally authorized to perform geological services or a professional engineer who applies geology to the practice of engineering. The report must include the following information:**

**(A) The thickness, vertical permeability, and spatial continuity of a protective layer or layers overlying the production aquifer.**

**(B) The local and regional geologic conditions of the well site area.**

**(C) The relative susceptibility to contamination of the proposed production aquifer.**

**(4) A well discharging into the inlet side of a surface water treatment process plant that meets the requirements of 327 IAC 8-2-8.5 and 327 IAC 8-2-8.6 shall not be held to an isolation area requirement.**

**(5) The isolation area shall be subject to the following additional requirements:**

**(A) The separation distance between two (2) or more wells of a public water supply system shall be maintained in accordance with the following:**

**(i) A production well with a pumping capacity of less than seventy (70) gallons per minute (GPM) shall not be located closer than fifty (50) feet from another production well.**

**(ii) A production well with a pumping capacity of greater than or equal to seventy (70) GPM shall not be located closer than one hundred (100) feet from another production well.**

**(iii) A public water supply system drinking water well that is a part of a transient noncommunity public water supply system that is not a nontransient noncommunity public water supply system shall not be closer than fifty (50) feet, regardless of the capacity of pumping equipment, from another well in the system.**

**(B) A storm or sanitary sewer shall not be located within the isolation area of a production well unless the storm or sanitary sewer is:**

**(i) more than fifty (50) feet, as measured from all directions, from a public water supply system production well; and**

**(ii) constructed in accordance with 327 IAC 8-3.2-8, 327 IAC 8-3.2-17(a), and 327 IAC 8-3.2-17(b).**

**(C) The standard isolation area for a public water supply system production well shall conform to the following requirements concerning transportation routes:**

**(i) Roadways, paved surfaces, and parking areas for service vehicles that:**

**(AA) service the proposed well, pump, and appurtenances;**

**(BB) are owned or controlled by the public water supply system;**

and

(CC) are restricted from access by the public;  
shall not be held to an isolation area requirement.

(ii) Roadways, paved surfaces, and parking areas that are part of the following shall not be located within fifty (50) feet of a well:

(AA) Residential subdivisions.

(BB) Apartment communities.

(CC) Mobile home parks.

(DD) Recreational parks.

(iii) A transportation route, such as a railway, roadway, paved area, or parking area, including paved or unpaved roadway or surface areas, that is:

(AA) accessible in full or in part for commercial or industrial transportation activities; or

(BB) listed as a hazardous material route;

shall not be located within the standard isolation area as measured from the outside edge of the well casing to the traveled portion of the transportation route.

(D) The distance between the location of a public water supply system production well casing and a surface water body, such as a stream, pond, lake, river, impoundment, or drainage ditch, shall be a minimum of twenty-five (25) feet.

(6) The commissioner may modify the requirements of an isolation area or a separation distance to an alternative area or distance so long as the alternative area or distance shall be able to provide the same factor of safety for filtering pathogenic contaminants as the standard isolation area or separation distance. The commissioner's decision to allow an alternative isolation area or separation distance shall be based on the following conditions:

(A) The applicant's submission of a report describing:

(i) treatment processes;

(ii) geologic features;

(iii) additional raw water monitoring provisions; or

(iv) other means of providing pathogenic contaminant filtration.

(B) The report required by clause (A) must:

(i) be signed and sealed by a professional engineer or certified professional geologist; or

(ii) cite the applicable provisions of 327 IAC 8-4.1.

(7) A supplier of water to a public water system shall own or control the isolation area by recorded deed, easement, or long term lease.

(8) The use, application, storage, mixing, loading, and transportation of pesticides in accordance with IC 15-3-3.5, IC 15-3-3.6, and the rules and guidance thereunder, developed by the pesticide review board and the office of the Indiana state chemist, may occur within the standard isolation area if the following requirements are met by the public water system:

(A) The production well casing is constructed of steel in accordance with section

16 of this rule.

(B) The product is stored within a containment system designed, constructed, operated, and maintained to contain spills or leaks.

(9) Water treatment chemicals and fuels for water production equipment containing contaminants that are not registered pesticides regulated under the federal Safe Drinking Water Act, 42 U.S.C. 300f et seq., as amended August 6, 1996\* may be used, stored, mixed, loaded, and transported within the standard isolation area if the following conditions are met:

(A) The production well casing is constructed of steel in accordance with section 16 of this rule.

(B) The product is stored within a containment system designed, constructed, operated, and maintained to contain spills or leaks.

(C) The product is stored in an underground or aboveground storage tank that is in conformance with applicable federal, state, and local laws and regulations.

\*The federal Safe Drinking Water Act is incorporated by reference. Copies of this law may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46206. (*Water Pollution Control Board; 327 IAC 8-3.4-9*)

#### **327 IAC 8-3.4-10 Production well design criteria**

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 10. (a) A new public water supply system production well must have capacity to meet the pressure and flowrate demands of the system as calculated in section 12 of this rule.

(b) A public water supply system production well that is equipped with a well screen shall:

(1) possess a sustainable yield that prevents the pumping level from dropping below the top of the well screen; and

(2) operate with an entrance velocity less than or equal to one-tenth (0.1) foot per second.

(c) A public water supply system production well shall be evaluated to determine whether it is under the direct influence of surface water as required under 327 IAC 8-2-8.5(b). (*Water Pollution Control Board; 327 IAC 8-3.4-10*)

#### **327 IAC 8-3.4-11 Production well minimum diameter**

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 11. (a) The minimum inside diameter of a production well casing shall be five (5) inches.

(b) The minimum inside diameter of a production well casing shall be in accordance with the following table:

**Table 11-1**  
**Production Well Casing Minimum Diameter Requirements (inches) Based on Outside Diameter of Pump Assembly**

<b>Outside Diameter of Pump Assembly</b>	<b>Minimum (Actual) Inside Diameter of Well Casing</b>
4	5
5	6
6	8
8	10
10	12
12	14
14	16
16	20
18	22
20	24
22	26

For a pump assembly with an outside diameter of between four (4) inches and twenty-two (22) inches but not appearing on this table, linear interpolation shall be used to determine the minimum inside diameter of the production well casing. For a pump assembly with an outside diameter greater than twenty-two (22) inches, the minimum inside diameter of the production well casing shall be at least one and twenty-five hundredths (1.25) times the outside diameter of the pump assembly. (*Water Pollution Control Board; 327 IAC 8-3.4-11*)

**327 IAC 327 8-3.4-12 Flowrate and pressure requirements**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 12. (a)** The normal operating pressure in the distribution system of a noncommunity public water supply system shall meet the following conditions:

**(1)** Be a minimum of thirty-five (35) pounds per square inch (psi) at ground level for a flowrate equal to the average daily consumer demand as determined in 327 IAC 8-

**3.3-2.**

**(2) Be at least twenty (20) psi under all conditions of flow in the distribution system and at ground level for a flowrate equal to the peak daily consumer demand as determined in 327 IAC 8-3.3-2.**

**(b) Flowrate and pressure requirements for a community public water supply system shall be in accordance with the requirements of 327 IAC 8-3.2-11. (*Water Pollution Control Board; 327 IAC 8-3.4-12*)**

**327 IAC 8-3.4-13 Backup provisions for production wells**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 13. (a) The following backup provisions shall apply to both a community public water supply system and a noncommunity public water supply system having a pumping capacity greater than or equal to seventy (70) gallons per minute:**

**(1) The backup provisions shall be designed to provide system conformance with section 12 of this rule when the largest pump is out of service.**

**(2) A system shall have one (1) or more backup wells designed to provide system conformance with section 12 of this rule.**

**(b) Schools, correctional facilities, health care facilities, and agricultural labor camps, regardless of pumping capacity, must comply with the requirements of subsection (a). (*Water Pollution Control Board; 327 IAC 8-3.4-13*)**

**327 IAC 8-3.4-14 Hydropneumatic storage tanks**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 22-12**

**Sec. 14. (a) A hydropneumatic storage tank shall abide by the following:**

**(1) The requirements of IC 22-12 and 680 IAC.**

**(2) Shall not be buried except when in accordance with subdivisions (3) and (4).**

**(3) A tank shall be protected from freezing and flooding.**

**(4) Provide housing as follows:**

**(A) A hydropneumatic storage tank with an air-water diaphragm separator shall be within housing.**

**(B) Hydropneumatic storage tanks without an air-water separator shall have all non-tank mechanical parts, including valves, piping, and components, within housing.**

**(5) Be equipped to provide the following:**

**(A) The ability to isolate the tank from the rest of the public water system.**

**(B) A drain.**

**(C) Control equipment consisting of the following:**

**(i) A pressure gauge.**

**(ii) Pressure relief valve.**

**(iii) Air addition as follows:**

**(AA) Manual air addition may suffice for a hydropneumatic storage tank with an air-water diaphragm separator.**

**(BB) Equipment for automatic air addition shall be required for all other hydropneumatic storage tanks.**

**(iv) Start and stop controls for the pumps.**

**(b) The usable capacity of a hydropneumatic storage tank must be a minimum of three (3) times the installed rated capacity, in gallons per minute, of the primary pump, or pumps if more than one pump is used to meet peak system demand, at an operating pressure of at least thirty-five (35) pounds per square inch.**

**(c) Hydropneumatic tank storage of water shall not be designated for fire protection purposes.**

**(d) A hydropneumatic tank shall not be used in a community public water supply system when more than four hundred (400) persons are served. (*Water Pollution Control Board; 327 IAC 8-3.4-14*)**

**327 IAC 8-3.4-15 Discharge piping**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 15. Discharge piping shall:**

**(1) meet the material requirements of 327 IAC 8-3.2-8;**

**(2) meet the installation requirements of 327 IAC 8-3.2-17;**

**(3) have control valves and other accessories located above the pumphouse floor when the discharge piping is located above grade; and**

**(4) be equipped with:**

**(A) check valve;**

**(B) shut off valve;**

**(C) pressure gauge;**

**(D) flow measuring equipment for individual or collective flow measurement;**

**(E) smooth nosed sample tap installed where positive pressure is maintained; and**

**(F) threaded or flanged port for maintenance and testing.**

**(*Water Pollution Control Board; 327 IAC 8-3.4-15*)**

**327 IAC 8-3.4-16 Casing and screen requirements**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 16. (a) A drinking water production well casing shall meet the following requirements:**

**(1) A steel or stainless steel casing is required for the following:**



- (A) A community public water supply system.
  - (B) A public water supply system production well casing with an inside diameter greater than six (6) inches.
- (2) Steel or stainless steel shall meet the following:
  - (A) Schedule 40 if the casing is less than or equal to ten (10) inches in diameter.
  - (B) Be at least three hundred seventy-five thousandths (0.375) of an inch in thickness if the casing is greater than ten (10) inches in diameter.
- (3) Steel or stainless steel pipe used in a well casing shall be joined by:
  - (A) threading and the use of screwed couplings; or
  - (B) welding with full circumference welds.
- (4) A production well not regulated under subdivision (1) may be equipped with a polyvinyl chloride (PVC) well casing when all of the following are met:
  - (A) The production well is not located within two hundred (200) feet of stored or staged petroleum products or any known sources of volatile or semivolatile organic contaminants.
  - (B) The PVC casing is joined by solvent welding or mechanical joints that use PVC locking strips and synthetic watertight sealing gaskets.
  - (C) The PVC well casing and joints meet the requirements of ANSI/ASTM F480-94 for "Thermoplastic Water Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR)" (Annual Book of ASTM Standards, March 1994)\*.
  - (D) The minimum wall thickness of PVC casing is at least the equivalent of SDR 21 according to ANSI/ASTM F480-94 for "Thermoplastic Water Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR)" (Annual Book of ASTM Standards, March 1994)\*.
  - (E) PVC casing shall be protected from damage from collision in accordance with the following:
    - (i) Three (3) posts shall be placed in an equilateral formation no more than twenty-four (24) inches in radius from the outside edge of the casing.
    - (ii) The posts specified in item (i) shall be concrete-filled steel posts at least four (4) inches in diameter or hollow steel at least twenty-five hundredths (0.25) of an inch in thickness.
    - (iii) The posts specified in item (i) shall extend at least three (3) feet above grade and four (4) feet below grade.
- (5) A permanent well casing shall terminate as follows:
  - (A) At the higher level of one (1) of the following:
    - (i) At least eighteen (18) inches above finished grade.
    - (ii) At least thirty-six (36) inches above the regulatory flood elevation if located in a designated flood hazard area identified by the Federal Emergency Management Agency (FEMA).
  - (B) At least twelve (12) inches above the pump house floor or concrete apron.
- (b) The casing shall be vented to the atmosphere with a vent that terminates in a downturned position at or above the top of the casing or the pitless adapter unit. The vent

shall have a minimum one and one-half (1½) inch diameter opening covered with a twenty-four (24) mesh, noncorrodible screen.

(c) A production well shall meet the following construction requirements:

(1) Have a maximum deviation from plumb not in excess of two-thirds (⅔) of the inside diameter of the well casing per one hundred (100) feet of well depth.

(2) Be aligned to permit proper operation of the type of permanent pump intended for the well. Alignment shall be tested as follows:

(A) By lowering into the well, through its entire depth, a section of pipe forty (40) feet long or a dummy of the same length.

(B) The pipe or dummy used as specified by clause (A) shall be in accordance with the following:

(i) One-half (½) inch less in diameter than the inside diameter of the part of the casing or hole being tested when the casing or hole diameter is ten (10) inches or less.

(ii) One (1) inch smaller than the inside diameter when that part of the casing or hole being tested is greater than ten (10) inches.

(C) An alignment test shall not be required inside well screens.

(d) A production well completed in an unconsolidated formation shall have screens installed and constructed of one (1) of the following materials:

(1) Stainless steel.

(2) PVC only if the casing material is also PVC.

(e) A production well casing shall be fitted to permit measurements of static and pumping water levels.

(f) A production well in an unconsolidated formation shall be packed with silica gravel if it has artificial gravel wall filters.

(g) The well house floor shall be at least six (6) inches above grade.

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**327 IAC 8-3.4-17 Pitless adapter unit requirements**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 17. A production water well equipped with a pitless unit shall meet the following requirements:**

**(1) A pitless unit shall be constructed of steel or stainless steel unless the well casing is constructed of PVC in accordance with section 16 of this rule.**

**(2) A pitless unit shall be installed on the well casing using one (1) of the following types of joints:**

**(A) Welded.**

**(B) Flanged.**

**(C) Threaded.**

**(3) The discharge connection of a pitless unit shall be pressurized at all times.**

**(4) A pitless unit shall be designed so that the pump can be removed for servicing and maintenance without disturbing the underground discharge piping.**

**(5) A pitless unit shall have an inside diameter greater than or equal to the casing diameter if the casing diameter is less than twelve (12) inches.**

**(6) At least one (1) check valve shall be installed inside the well casing if a submersible pump is used.**

**(7) A compression joint shall not be used for the installation of a pitless unit.**

**(8) A buried suction line is not permitted.**

**(9) A saddle-type pitless adapter is not permitted.**

*(Water Pollution Control Board; 327 IAC 8-3.4-17)*

**327 IAC 8-3.4-18 Cross connection control requirements**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 18. Backflow and back siphonage prevention must be provided in accordance with 327 IAC 8-10. *(Water Pollution Control Board; 327 IAC 8-3.4-18)***

**327 IAC 8-3.4-19 Emergency operation of a production well**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 19. Unless an alternate water supply capable of meeting average demand is available, a production well shall have the electrical equipment necessary for the use of one (1) of the following:**

**(1) Dual power feeds.**

**(2) Standby generators.**

*(Water Pollution Control Board; 327 IAC 8-3.4-19)*

**327 IAC 8-3.4-20 Rotary well drilling procedure requirements**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 20. A well constructed using rotary drilling shall be drilled in accordance with the following:**

- (1) The borehole shall be at least three (3) inches greater in diameter than the outside diameter of the proposed casing.**
- (2) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.**
- (3) A production well constructed in an unconsolidated formation shall be gravel packed with silica gravel to an elevation at least ten (10) feet above the elevation of the top of the well screen.**
- (4) The well shall have a minimum of twenty-five (25) feet of the borehole annulus grouted in accordance with section 23 of this rule.**
- (5) A well penetrating bedrock shall have the borehole annulus grouted, in accordance with section 23 of this rule, from the bottom of the well casing, or the top of the formation packer to the ground surface or pitless adapter connection.**

*(Water Pollution Control Board; 327 IAC 8-3.4-20)*

### **327 IAC 8-3.4-21 Cable tool well drilling procedure requirements**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 21. A well constructed using cable tool drilling shall be drilled in accordance with the following:**

- (1) A borehole, with an inside diameter at least three (3) inches greater than the outside diameter of the well casing to be driven, shall be dug to a depth of at least three (3) feet, but no more than five (5) feet, below the ground surface.**
- (2) The well casing shall be centered in the larger diameter borehole, and the borehole shall remain full of a bentonite slurry or granular bentonite during the installation of the well casing.**
- (3) Notwithstanding section 23 of this rule, bentonite slurry may be introduced into the borehole annulus by gravity methods in a manner to prevent bridging.**
- (4) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.**
- (5) The well must be grouted in accordance with section 23 of this rule if one (1) of the following occurs:**
  - (A) A larger diameter temporary casing is used to install a smaller diameter permanent well casing.**
  - (B) A larger diameter borehole is drilled to install a smaller diameter well casing.**

*(Water Pollution Control Board; 327 IAC 8-3.4-21)*

### **327 IAC 8-3.4-22 Bucket well requirements**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 22. Bucket well use, materials, and procedures must be presented as alternative**

technical standards in accordance with section 27 of this rule. (*Water Pollution Control Board; 327 IAC 8-3.4-22*)

**327 IAC 8-3.4-23 Grouting requirements**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2

**Sec. 23.** This section governs grouting materials and the installation of grouting materials.

**(1) Grouting materials shall consist of the following:**

**(A)** Neat cement grout shall consist of cement conforming to ASTM C150 (1996 Annual Book of ASTM Standards)\* and contain at least two percent (2%) but no more than five percent (5%) by weight of bentonite additive.

**(B)** Bentonite slurry that can include polymers designed to retard swelling.

**(C)** Pelletized, granular, medium-grade or coarse-grade crushed bentonite.

**(D)** Concrete grout shall consist of equal amounts of:

**(i)** cement, conforming to AWWA A100-90, Section 7 (effective February 1, 1991)\*\*; and

**(ii)** sand mixed with the addition of water to make a mixture not exceeding six (6) gallons of water per one (1) cubic foot of cement; and contain at least two percent (2%) but no more than five percent (5%) by weight of bentonite additive.

**(2) The installation of grouting materials shall be in accordance with the following:**

**(A)** Except as provided in section 21(2) of this rule, neat cement and bentonite slurry shall be pressure pumped into place with a grout pipe from the bottom of the annular space upward in a continuous operation.

**(B)** Pelletized, granular, medium-grade or coarse-grade crushed bentonite shall be introduced in a manner to prevent bridging of the borehole annulus.

**(C)** Concrete grout shall be installed according to one (1) of the following:

**(i)** Pressure pumped.

**(ii)** Placed by gravity through a grout pipe from the bottom of the annular space upward in a continuous operation.

**(iii)** Introduced in a manner to prevent bridging of the borehole annulus.

**(3)** The annulus of a well shall be grouted with one (1) of the types of grout as specified in subdivision (1) and in accordance with the applicable grout installation methods specified in subdivision (2), with the exception of a prohibition against using the method named in subdivision (2)(C)(iii), if:

**(A)** the diameter of the borehole is eight (8) inches or larger than the outside diameter of the well casing; and

**(B)** the well is equal to or less than one hundred (100) feet in depth.

**(4)** The annulus of a well shall be pressure grouted with neat cement, concrete grout, or a bentonite slurry if:

**(A)** the diameter of the borehole is less than eight (8) inches larger than the outside diameter of the well casing; or

**(B)** the well is greater than one hundred (100) feet in depth.

(5) The annulus of a well may be grouted, with concrete grout containing gravel not larger than one-half ( $\frac{1}{2}$ ) inch in size, by using gravity without the use of a grout pipe if:

(A) the diameter of the borehole is greater than twelve (12) inches larger than the outside diameter of the well casing; and

(B) the depth to be grouted is equal to or less than ten (10) feet.

(6) Grouting of the borehole annulus shall be accomplished upon the earlier of the following events:

(A) Within twenty-four (24) hours following the installation of the well casing.

(B) The removal of drilling equipment from the proposed well location.

(7) All work on the well shall cease during the grout set up time as specified by the grout material supplier.

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#### **327 IAC 8-3.4-24 Disinfection procedure requirements**

**Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1**

**Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2**

**Sec. 24. (a) The disinfection procedures described in this section shall be performed with one (1) of the following approved forms of chlorine:**

**(1) Calcium hypochlorite.**

**(2) Sodium hypochlorite.**

**(b) Gravel installed in a new production well must be chlorinated by use of the following method:**

**(1) Silica gravel for gravel pack shall be disinfected with calcium hypochlorite or sodium hypochlorite prior to installation in a well at a rate that will produce a liquid concentration of at least fifty (50) milligrams per liter (mg/L) as the gravel is installed.**

**(2) The gravel, disinfected according to subdivision (1), shall be fed into a gravel chute**

or tremie to completely fill the annular void outside the well casing to the top gravel pack level.

(3) Chlorine shall be added to the well, following the activity described in subdivision (2), and circulated until a chlorine concentration of not less than fifty (50) mg/L in the entire volume of fluid is achieved.

(c) Immediately before placement in the void caused by settled gravel in a well, replacement gravel shall be soaked in a chlorine solution of at least fifty (50) mg/L for a duration not less than thirty (30) minutes during initial construction or subsequent repairs.

(d) Permanent equipment and material used in a production well shall be chlorinated prior to installation by spraying exposed areas with a solution containing a chlorine residual of no less than two hundred (200) milligrams per liter (mg/l).

(e) A new or modified well proposed to be a production well shall be chlorinated in accordance with one (1) of the following:

- (1) The water in the well casing shall be treated for disinfection as follows:
  - (A) To create a chlorine residual of one hundred (100) milligrams per liter to the entire volume of water in the casing, well screen, and rock hole, if present.
  - (B) The well must be chlorinated using the compound requirements in Table 24-1.
  - (C) The well must be surged at least three (3) times following chlorination.
  - (D) The chlorinated water must remain in the well casing at least twelve (12) hours following the surging activity of clause (C).
- (2) The water in the well casing shall be treated for disinfection as follows:
  - (A) To create a chlorine residual of fifty (50) mg/l to the entire volume of water in the casing, well screen, and rock hole, if present.
  - (B) The well must be chlorinated using the compound requirements in Table 24-1.
  - (C) The well must be surged at least three (3) times following chlorination.
  - (D) The chlorinated water must then remain in the well casing at least twenty-four (24) hours following the surging activity of clause (C).

Table 24-1

Amount of Chemical Compound

Well-Hole or Well-Casing Diameter (in.)	Volume per 100 Feet of Water Depth (gal)	Calcium Hypochlorite* (65 percent available Cl <sub>2</sub> )	Sodium Hypochlorite <sup>†</sup> (12 trade percent <sup>‡</sup> )
5	106.09	1.1 oz	5.65 fl oz
6	146.9	1.5 oz	7.8 fl oz
8	261.1	2.7 oz	13.9 fl oz

10	408.0	4.2 oz	1.4 pt
12	587.5	6.0 oz	2.0 pt
16	1,044.0	10.7 oz	3.5 pt
20	1,632.0	1 lb 1 oz	0.7 gal
24	2,350.0	1 lb 8 oz	1.0 gal
30	3,672.0	2 lb 6 oz	1.5 gal
36	5,287.0	3 lb 6 oz	2.2 gal
48	9,400.0	6 lb 1 oz	3.9 gal
60	11,690.0	9 lb 7 oz	6.1 gal

**Notes:**

\*Quantities of  $\text{Ca}(\text{OCl})_2$  based on 65 percent available chlorine by dry weight (16 oz = 1 lb).

†Quantities of  $\text{NaOCl}$  based on 12 trade percent available chlorine by US liquid measure (1 gal = 4 qt = 8 pt = 128 fl oz).

‡Trade percent is a term used by chlorine manufacturers; trade percent x 10 = grams of available chlorine in 1 liter of solution.

(f) After disinfection accomplished in accordance with subsection (e), a new or modified public water supply system production well and a flowing well shall be sampled for the presence of coliform at least twice, with sampling done no less than twenty-four (24) hours apart, by a laboratory certified by the Indiana state department of health. If the presence of coliform is indicated by the sample results, the disinfection of the well shall be repeated.

(g) Disposal of chlorinated water from well disinfection shall be to one (1) of the following sources:

- (1) A sanitary sewer with the approval of the local sewer authority.
- (2) A location other than a sanitary sewer in accordance with local, state, and federal regulations.

*(Water Pollution Control Board; 327 IAC 8-3.4-24)*

**327 IAC 8-3.4-25 Postconstruction testing and reporting requirements**

**Authority:** IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

**Affected:** IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-16-2

**Sec. 25. (a)** The following information must be submitted to the commissioner before a new or modified production well is placed into production:

- (1) Results of a production well performance test (PWPT) that was performed for a period of at least twenty-four (24) hours for a community public water supply



system and at least eight (8) hours for a noncommunity public water supply system. The PWPT information submitted to the commissioner shall include the following:

- (A) Pumping rate of test (at least one (1) times the maximum daily pumping rate).
  - (B) Static water level (stable before pumping).
  - (C) Water level at start up and at interim readings.
  - (D) Water level at the end of the PWPT.
  - (E) Specific capacity at the end of the PWPT.
- (2) A copy of the Indiana department of natural resources' record of water well completed in accordance with the requirements of 310 IAC 16-2-6.
- (3) The results of water quality samples obtained during test pumping.
- (4) The results of disinfection confirmation samples obtained during disinfection.
- (5) Completed copies of the chemical analytical reports of sampling done and analyzed by a laboratory certified by the Indiana department of health for the following constituents:
- (A) Nitrate (NO<sub>3</sub>).
  - (B) Fluoride.

(b) The commissioner may modify or revoke a construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2. (*Water Pollution Control Board; 327 IAC 8-3.4-25*)

#### **327 IAC 8-3.4-26 Conversion of a nonproduction well to a production well**

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 26. (a) A nonproduction well, such as a test well or a nonpublic water supply system well, must receive a construction permit in accordance with 327 IAC 8-3 before the well can be used as a production well to provide drinking water to a public water supply system.

(b) The commissioner may require the following information, in accordance with sections 4 and 5 of this rule and 327 IAC 8-3-3, for the purpose of reviewing a proposed conversion of a nonproduction well to a production well to confirm that the proposed production well conforms with this rule:

- (1) As-built drawings.
- (2) Report discussing the proposed production well and its conformance to this rule and 327 IAC 8-3-4.

(*Water Pollution Control Board; 327 IAC 8-3.4-26*)

#### **327 IAC 8-3.4-27 Alternative to technical standards**

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 27. (a) An alternative to a technical standard required by this rule may be

**approved by the commissioner for either a single application or for a public water supply system-wide application if the applicant demonstrates, in a written submission, that the alternative will meet the following:**

**(1) The requirements of 327 IAC 8-3-4.**

**(2) Provide drinking water of at least the same quality and normal operating pressure at the peak flowrate as the technical standards in this rule would provide.**

**(b) Continuing operation of the approved alternative technical standard shall require no renewal if the alternative technical standard is operated in the manner approved by the commissioner.**

**(c) An alternative to a technical standard shall only apply to the application or the public water supply system for which the alternative is requested. (*Water Pollution Control Board; 327 IAC 8-3.4-27*)**

**SECTION 2. THE FOLLOWING ARE REPEALED: 327 IAC 8-7; 327 IAC 8-8; 327 IAC 8-9.**